

- 1 1. A method for processing data comprising:
 - 2 (a) converting a stream of synchronous serial data associated with a source
 - 3 time slot into a plurality of parallel data units;
 - 4 (b) constructing, during a synchronization interval, at least one subpacket in
 - 5 memory from the plurality of parallel data units;
 - 6 (c) storing memory context information, including a destination time slot
 - 7 identifier, for each subpacket associated with the source time slot;
 - 8 (d) constructing a data packet in memory, the data packet including at least
 - 9 one synchronization tag identifying the synchronization interval, a plurality of
 - 10 subpackets, and the respective memory context information associated with each of the
 - 11 subpackets; and,
 - 12 (e) providing the data packet to a receiving mechanism.
- 1 2. The method of claim 1 wherein the receiving mechanism comprises an
- 2 asynchronous switch and the method further comprises:
 - 3 (f) receiving from the asynchronous switch the data packet at a destination
 - 4 and disassembling the data packet into subpackets.
- 1 3. The method of claim 2 wherein (f) comprises:
 - 2 (f1) directing a subpacket into a play-out memory buffer based on the
 - 3 destination time slot identifier associated with the subpacket.
- 1 4. The method of claim 2 wherein (f) comprises:
 - 2 (f1) directing a subpacket into a location within a play-out memory buffer
 - 3 based on the synchronization tag associated with the subpacket.
- 1 5. The method of claim 2 wherein (f) comprises:
 - 2 (f1) determining a number of subpackets contained within the packet.

1 6. The method of claim 1 wherein the memory context comprises time slot
2 identification data.

1 7. The method of claim 1 wherein the memory context comprises destination queue
2 identification data.

1 8. The method of claim 1 wherein the memory context comprises enable data for
2 enabling a data stream.

1 9. The method of claim 1 wherein the packet further comprises data identifying the
2 number of subpackets contained therein.

1 10. The method of claim 1 wherein the asynchronous switch comprises a plurality of
2 destination ports and the packet further comprises data identifying to which of the
3 destination ports the packet will be supplied.

1 11. The method of claim 2 wherein (c) comprises:
2 (c1) storing memory context information for subpackets associated with each
3 of a plurality of different source time slots.

1 12. The method of claim 11 wherein (c) comprises:
2 (c2) maintaining associations between a plurality of source time slot identifiers
3 and a plurality of destination time slot identifiers.

1 13. A method for processing data comprising:
2 (a) converting a plurality of synchronous serial data streams, each associated
3 with a source time slot, into parallel data units;

4 (b) constructing, in ingress memory, at least one subpacket from the parallel
5 data units associated with one of the source time slots,
6 (c) retrieving ingress context data associated with the subpacket, the ingress
7 context data comprising a destination time slot identifier, a queue identifier, and an
8 enable variable;
9 (d) constructing, in each of a plurality of queues, a data packet from
10 subpackets and ingress context data associated with multiple source time slots, the
11 subpackets within the data packet completed within a synchronization interval, the data
12 packet further comprising i) at least one synchronization tag identifying the
13 synchronization interval , and ii) data identifying the number of subpackets contained in
14 the packet; and
15 (e) upon completion of a data packet, providing the data packet to the
16 receiving mechanism.

1 14. The method of claim 13 wherein (c) comprises:
2 (c1) upon completion of a subpacket, reading from an ingress context memory the
3 ingress context data.

1 15. A method for processing data comprising:
2 (a) providing an apparatus having synchronization logic and an asynchronous
3 switch for routing synchronous signals among a synchronous network interface and an
4 asynchronous network interface and synchronization logic;
5 (b) receiving a plurality synchronous serial data streams each from a different
6 source time slot;
7 (c) constructing a data packet from a plurality of subpackets each derived
8 from one the synchronous serial data streams and a respective memory context
9 associated with each subpacket; and
10 (d) routing the packet through the asynchronous switch to one of the
11 asynchronous network interface and the synchronous network interface.

1 16. A method for processing data comprising:
2 (a) receiving a data packet comprising a plurality of subpackets and ingress
3 context data associated with multiple source time slots, the subpackets within the data
4 packet completed within a synchronization interval, the data packet further comprising i)
5 at least one synchronization tag identifying the synchronization interval , and ii) data
6 identifying the number of subpackets contained in the packet;
7 (b) writing a subpackets into one of a plurality of playout buffers within an
8 egress memory based on context data associated with the subpacket;
9 (c) writing the subpacket to a position within one of the plurality of playout
10 buffers in accordance with the synchronization interval identified by the synchronization
11 tag plus a fixed address offset; and
12 (d) sequentially reading the subpackets from the playout buffer.

1 17. The method of claim 16 further comprising:
2 (e) converting the data in the subpacket into serial synchronous data.

1 18. The method of claim 16 wherein the context data associated with a subpacket
2 comprises a destination time slot identifier and wherein (b) comprises:
3 (b1) writing a subpackets into one of a plurality of playout buffers within the
4 egress memory in accordance with the destination time slot identifier.